

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A memory matrix module for use in a data network,
~~the memory matrix module~~ comprising:

A.1 at least one memory array having a plurality of memory devices arranged in
a plurality of banks, each memory device capable of storing data therein;

at least one memory controller coupled to the memory array and capable of
accessing the memory devices; and

a cache coupled to the memory controller, the cache having stored therein one
or more copies of a data allocation table (DAT) adapted to describe data stored in the
memory devices.

2. (Currently Amended) A The memory matrix module ~~according to claim of~~
Claim 1, wherein each of the banks has multiple ports, and wherein the multiple ports
and the DAT in the cache enable the memory controller to access different memory
devices in different banks simultaneously.

3. (Currently Amended) A The memory matrix module ~~according to claim of~~
Claim 1, wherein the data network is configured to connect a plurality of data processing
systems to the memory system, and wherein the memory matrix module is configured
to enable different data processing systems to access the memory array simultaneously.

4. (Currently Amended) A The memory matrix module ~~according to claim of~~
Claim 3, wherein the memory matrix module is configured to enable a first data
processing system to write to the memory array while simultaneously a second data
processing system reads from the memory array.

5. (Currently Amended) A The memory matrix module ~~according to claim of~~
Claim 1, wherein the memory devices comprise random access memory (RAM) devices.

6. (Currently Amended) A memory system for storing data therein for use in
a data network, the memory system comprising:

at least one memory matrix unit having at least one memory subsystem, the memory subsystem including:

A1 a memory array having a plurality of memory devices arranged in a plurality of banks, each memory device capable of storing data therein;

a memory controller coupled to the memory array and capable of accessing the memory devices; and

a cache coupled to the memory controller, the cache having stored therein one or more copies of a data allocation table (DAT) adapted to describe data stored in the memory devices; and

at least one management unit coupled to at least one memory matrix unit and to the data network to interface between the memory matrix unit and the data network.

7. (Currently Amended) A ~~The~~ memory system ~~according to claim~~ of Claim 6, wherein each of the banks has multiple ports, and wherein the multiple ports and the DAT in the cache enable the memory controller to access different memory devices in different banks simultaneously.

8. (Currently Amended) A ~~The~~ memory system ~~according to claim~~ of Claim 6, wherein the data network is configured to connect a plurality of data processing systems to the memory system, and wherein the memory system is configured to enable different data processing systems to access the memory array simultaneously.

9. (Currently Amended) A ~~The~~ memory system ~~according to claim~~ of Claim 8, wherein the memory system is configured to enable a first data processing system to write to the memory array while simultaneously a second data processing system reads from the memory array.

10. (Currently Amended) A ~~The~~ memory system ~~according to claim~~ of Claim 6, wherein the memory devices comprise random access memory (RAM) devices.

11. (Currently Amended) A memory system according to claim 6, further comprising a non-volatile storage unit having at least one non-volatile storage device to provide backup of data stored in the memory matrix unit.

12. (Currently Amended) A The memory system ~~according to claim of Claim~~ 11, wherein the non-volatile storage unit comprises a magnetic, optical, or magnetic-optical disk drive.

AI 13. (Currently Amended) A memory system according to claim 11, wherein the non-volatile storage unit comprises a plurality of hard disk drives, and wherein the hard disk drives are connected in a RAID configuration to provide mirrored copies of data in at least one memory matrix unit.

14. (Currently Amended) A The memory system ~~according to claim of Claim~~ 11, wherein the non-volatile storage unit comprises a plurality of hard disk drives, and wherein the hard disk drives are connected in a RAID Level 0 configuration to reduce the time to backup data in at least one memory matrix unit.

15. (Currently Amended) A The memory system ~~according to claim of Claim~~ 11, wherein the non-volatile storage unit comprises a plurality of hard disk drives, and wherein the hard disk drives comprises a hard disk drive adapted to create a continuous backup of data in at least one memory matrix unit on a periodic basis.

16. (Currently Amended) A The memory system ~~according to claim of Claim~~ 6, further comprising an off-line storage unit having removable storage media to provide off-line storage of data stored in at least one memory matrix unit.

17. (Currently Amended) A The memory system ~~according to claim of Claim~~ 16, further comprising an uninterruptible power supply (UPS) configured to supply power to at least one management unit, at least one memory matrix unit, the non-volatile storage unit, and the off-line storage unit from an electrical power line, and, in the event of a variation in power from the electrical power line, to provide power from a battery.

18. (Currently Amended) A The memory system ~~according to claim of Claim~~ 17, wherein the UPS is configured to transmit a signal to the management unit on variation of power from the electrical power line exceeding a first predetermined amount, and wherein the management unit is configured to create a backup copy of at least one memory matrix unit in the non-volatile storage unit.

19. (Currently Amended) A The memory system ~~according to claim of Claim~~ 18, wherein at least one management unit is further configured, on variation of power from the electrical power line exceeding a second predetermined amount, to:

signal users of the memory system in the data network; and

perform a controlled shutdown of the memory system.

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end 20. (Currently Amended) A The memory system ~~according to claim of Claim~~ 18, wherein at least one management unit is further configured on restoration of power from the electrical power line to:

restore the contents of at least one memory matrix unit from the backup copy of the memory matrix stored in the non-volatile storage unit;

reactivate the memory matrix as a primary memory;

reactivate other memory matrixes as secondary memories if previously configured as secondary memories; and

reactivate the non-volatile storage unit as a secondary memory, thereby returning the memory system to normal operating condition.

21. (Currently Amended) A The memory system ~~according to claim of Claim~~ 20, wherein at least one management unit is further configured on restoration of power from the electrical power line, if the non-volatile storage unit is unavailable, to restore at least one memory matrix unit directly from another backup copy of the memory matrix unit stored in removable storage media in an off-line storage unit.

22. (Currently Amended) A The memory system ~~according to claim of Claim~~ 6, wherein the data network is based on either physical wire or wireless connections.
